US DEPARTMENT OF AGRICULTURE
FOREST SERVICE

5230

Northeastern Area State & Private Forestry

DIVISION OF FOREST PEST CONTROL

Report No. S-69-13 July, 1969

JACK-PINE BUDWORM EARLY INSTAR LARVAL SURVEY ON THE SUPERIOR N.F.

I. Millers and T. Eiber

INTRODUCTION

The jack-pine budworm is a perenial pest of jack and red pine in the Lake States. The damage from defoliation results in growth reduction, top-kill, or tree mortality, depending on the severity of defoliation.

Predictions of budworm outbreaks and defoliation have been inaccurate To improve the predictions, annual evaluation surveys were inaugurated to determine the following:

1. To determine the degree of budworm population fluctuations during pre-outbreak periods.

2. To determine the effect of previous pine defoliation on the budworm populations.

3. To determine how much defoliation occurs from a given larval population.

This report covers the results of early larval collections made in June, 1969, and compares the populations with egg survey results from the previous fall.

METHODS

The detailed sampling plans are described in the original evaluation plan (Millers, 1968). In general, it follows the techniques described by Foltz et al., 1968. Briefly, 4 branches are sampled from each of 10 trees (2 from mid-crown and 2 from lower crown) in a cluster at preselected locations. During egg survey in fall, 36 inch long branches were examined. For larval surveys, 18 inch long branches are sampled. Summer Students, FPC, and a crew at the Toumey Nursery, Watersmeet, Michigan, were responsible for branch examination. The results are expressed as number of budworms (or eggs) per 100 shoots (current growth tips) per plot. More than 40 budworms per 100 tips can be expected tocause heavy defoliation.

RESULTS

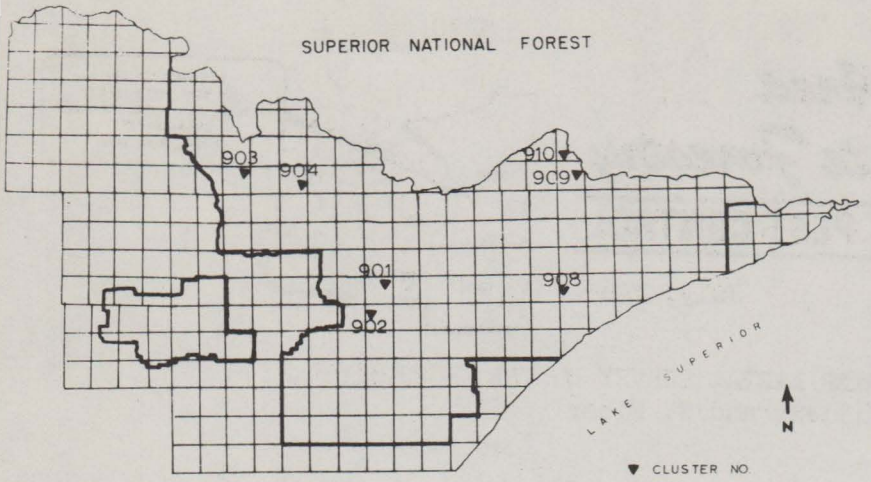

Table 1 shows the current budworm populations on the Superior National Forest and compares them with last fall's egg populations. The map shows the locations of the sample clusters.

Most of the jack pine areas support low budworm populations. Only in Big Moose Lake area (cluster 904) a moderate population is present. In the latter area, visible defoliation is expected.

TABLE 1. JACK-PINE BUDWORM POPULATIONS ON THE SUPERIOR NATIONAL FOREST

CLUSTER No.	FALL, 1968 Eggs/100 tips	SPRING, 1969 Larvae/100 tips
903	30	3.06
904	47	18.58
901	9	0.92
902	6	6.01
908	2	6.68
909	2	0.97
910	0	0.15

REFERENCES

FOLTZ, J. L., F. B. Knight, D. C. Allen, A. J. Mattson, Jr. 1968. A technique for sampling populations of the jack-pine budworm. Forest Service 14(3): 277-281

MILLERS, I. 1968. Evaluation plan for jack-pine budworm larval populations on National Forests in the Lake States. USDA, Forest Service, NA S&PF, St. Paul Field Office. 5230. 6 pp.